

Oken O, Kahraman Y, et al. The Short-term Efficacy of Laser, Brace, and Ultrasound Treatment in Lateral Epicondylitis: A Prospective, Randomized, Controlled Trial. J Hand Ther 2008;21:63-8.

Design: Randomized clinical trial

Abbreviated summary of findings:

- 58 patients (49 women, 9 men, mean age 45) with lateral epicondylitis completed a three-arm randomized clinical trial
- Randomized to a forearm brace (n=20), ultrasound (n=18), and low level laser (n=20) for two weeks of treatment
- At the end of two weeks, the treatments were discontinued
- Outcomes were measured at baseline, at 2 weeks, and at 6 weeks, and consisted of VAS pain, blinded measurement of grip strength, and the patient's global assessment of his or her outcome
- At two weeks, all three groups reported lower VAS pain scores
- At 6 weeks, the VAS pain score had risen from the 2 week score in the brace group, and had declined in the ultrasound and laser groups
- At 6 weeks, grip strength had improved in the laser group, but not in the brace or ultrasound groups
- Global assessment in the brace group between weeks 2 and 6, but was unchanged in the ultrasound group and improved in the laser group
- However, between-group comparisons of pain VAS, grip strength, and global assessment was not significantly different between the 3 groups at baseline or at either of the follow-up measurements
- No adverse effects were reported

Authors' conclusions:

- Bracing is less effective than ultrasound and laser in reducing pain; laser increases grip strength but is not superior to bracing or ultrasound in terms of improving pain and grip strength
- Additional studies are needed to determine effect of laser on lateral epicondylitis

Comments:

- The reported improvements in the laser group refer to statistically significant change within subjects compared to baseline; the lack of differences between groups refer to a lack of statistical significance in the comparison between groups; due to the greater power of within-group comparisons, both these statements can be true
- Randomization was reported to have been done, but concealment of allocation is not reported
- The brace group wore the device "during the daytime for two weeks," but it is not clear what the instructions were: to have the device in place from waking until bedtime, or whether the hours of usage were the same for all the individuals in the group

- Table 1 describes a four-step stretching and strengthening exercise program, but no information is given about the progress of the patients with the program—whether more patients arrived at step 4 in one group or another, or whether any patients completed the program
- Grip strength is the only blinded outcome measure, but it is not clear whether this is pain-free or maximum grip strength
- Global assessment of improvement was measured on a six-point scale, and was reported in Table 3 in terms of means and standard deviations; however, the authors stated that they would analyze categorical comparisons with a chi-square test (implying a success vs. failure comparison which is usually done with global assessment of improvement)
- The Results section reports that “grip strength of the affected hand had increased only in the laser and ultrasound group at the sixth week,” but the ultrasound group strength decreased from 45.1 to 43.6

Assessment: Inadequate (concealment of allocation appears not to have been done, description of use of brace lacks detail, functional gains not clear). No evidence statement can be made regarding the comparative effectiveness of laser, ultrasound, and brace